CLAIMS

1. A hollow carbon nanoballoon structure comprising graphite sheets linked to form a curved surface and having a diameter of 20 to 500 nm, the diameter being a value obtained by averaging a length of the structure in a direction of an X-axis passing through a center of the structure and a length of the structure in a Y-axis direction passing through the center and perpendicularly intersecting the X-axis.

2. The carbon nanoballoon structure according to claim 1, wherein the number of the graphite sheets is 1 to 30.

3. The carbon nanoballoon structure according to claim 1 or 2, having a void content of 30 to 99%, the void content being determined by calculating the diameter of the structure by averaging the length of the structure in the direction of the X-axis passing through the center of the structure and the length of the structure in the direction of the Y-axis passing through the center and perpendicularly intersecting the X-axis, approximating the volume of the structure as a sphere, calculating the diameter of the hollow portion by subtracting a value twice the thickness of the graphite sheet (graphene) from the diameter of the structure, approximating the volume of the hollow portion as a sphere, and calculating (volume of the hollow portion/volume of the structure) × 100%.

4. The carbon nanoballoon structure according to any of claims 1 to 3, wherein an opening reaching the hollow portion is formed in the structure.

5. A method of producing the carbon nanoballoon structure according to any of claims 1 to 3, comprising heating soot prepared by arc discharge using carbon

electrodes, soot prepared by vaporizing carbon by laser irradiation (ablation), or carbon black having a specific surface area of 1000 m^2/g or more and a primary particle diameter of 20 nm or more at a high temperature in an inert gas atmosphere.

6. The method according to claim 5, wherein the arc discharge using the carbon electrodes or the laser irradiation of carbon is performed in a nitrogen atmosphere, an oxygen atmosphere, a hydrogen atmosphere, or a mixed atmosphere of two or more gases selected from nitrogen, oxygen, and hydrogen, and the resulting soot partially includes a carbon nanohorn.

7. An electron emitter which emits electrons upon application of an electric field between an extractor electrode and a cathode electrode positioned close to the extractor electrode and including an emitter material, the emitter material including the carbon nanoballoon structure according to any of claims 1 to 3.